

Application No.: 09/889,085

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LISTING OF PENDING CLAIMSListing of the Claims:

1.-19. (Cancelled)

20. (Withdrawn) A process of preparing a microbial preparation having an increased survival/recovery rate in a product, the process comprising growing or culturing microbes in a media based on or containing resistant starch in a manner such that when subsequently incorporated in a product the survival/recovery rate of the harvested microbes is increased as compared with the same microbes grown or cultured in a media without resistant starch, and harvesting the cultured microbes having an increased survival/recovery rate.

21. (Withdrawn) The process according to claim 20 wherein the product is selected from the group consisting of a food, feed, nutraceutical, pharmaceutical, biocontrol, and bioremediation product.

22. (Withdrawn) The process according to claim 20 wherein the resistant starch is type RS1, RS2, RS3 or RS4.

23. (Withdrawn) The process according to claim 22 wherein the resistant starch is derived from starch selected from the group consisting of maize, rice, barley, wheat, legumes, potatoes, and bananas.

24. (Withdrawn) The process according to claim 23 wherein the resistant starch is derived from a starch having an amylose content of at least 40% (w/w).

25. (Withdrawn) The process according to claim 24 wherein the resistant starch is derived from maize starch.

26. (Withdrawn) The process according to claim 25 wherein the maize starch having an amylose content of at least 70% (w/w).

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27. (Withdrawn) The process according to claim 25 wherein the maize starch having an amylose content of at least 80% (w/w).

28. (Withdrawn) The process according to claim 25 wherein the maize starch having an amylose content of at least 90% (w/w).

29. (Withdrawn) The process according to claim 23 wherein the starch is chemically, physically, and/or enzymically treated or modified.

30. (Withdrawn) The process according to claim 29 wherein the chemical modification is selected from the group consisting of oxidation, cross-bonding, etherification, esterification, acidification, dextrinisation, and mixtures thereof.

31. (Withdrawn) The process according to claim 29 wherein the physical treatment is heat-moisture treatment to enhance or increase the resistant starch content of the starch.

32. (Withdrawn) The process according to claim 29 wherein the treatment is by solvent extraction to remove fats and/or minerals from the starch.

33. (Withdrawn) The process according to claim 20 wherein the resistant starch is used in the media at a concentration of 0.01 to 10% (w/w).

34. (Withdrawn) The process according to claim 33 wherein the resistant starch is used in the media at 0.1 to 5% (w/w).

35. (Withdrawn) The process according to claim 33 wherein the resistant starch is used in the media at 1% (w/w).

36. (Withdrawn) The process according to claim 20 wherein in use the microbes are unaffected by stresses including aeration, sheer, freeze drying, freezing, drying including high, medium and low water activity, elevated temperatures, low temperatures, pressure and

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pressure fluctuations, low pH, high pH, bile acids, moisture, high osmolarity, low osmolarity, high salt, or combinations thereof.

37. (Withdrawn) The process according to claim 20 wherein the microbial preparation is a probiotic, a starter culture, a biocontrol or bioremediation product.

38. (Withdrawn) The process according to claim 37 wherein the microbes are probiotic microorganisms from the genera selected from the group of consisting of Saccharomyces, Bifidobacterium, Bacteroides, Clostridium, Fusobacterium, Propionibacterium, Streptococcus, Enterococcus, Lactococcus, Staphylococcus, Peptostreptococcus, and Lactobacillus.

39. (Withdrawn) The process according to claim 37 wherein the microbes are starter cultures selected from the group consisting of lactic acid bacteria lactic acid bacteria including lactobacillus, lactococcus and streptococcus, leuconostoc, and yeasts.

40. (Withdrawn) The process according to claim 37 wherein the microbes are suitable for use in biocontrol or bioremediation being selected from the group consisting of bifidobacteria, acidophilus, fungi, Bacillus species, pseudomonads and Alcaligenes.

41-62. (Cancelled)

63. (Withdrawn) Use of resistant starch in a microbial culture media to produce microbes which when used subsequently in a product after being harvested from the media, have an increased survival/recovery rate as compared with the same microbes grown or cultured in a media without resistant starch.

64. (Withdrawn) The use according to claim 63 wherein the product is selected from the group consisting of a food, feed, nutraceutical, pharmaceutical, biocontrol, and bioremediation product.

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65. (Withdrawn) The use according to claim 64 wherein the resistant starch is type RS1, RS2, RS3 or RS4.

66. (Withdrawn) The use according to claim 65 wherein the resistant starch is derived from starch selected from the group consisting of maize, rice, barley, wheat, legumes, potatoes, and bananas.

67. (Withdrawn) The use according to claim 66 wherein the resistant starch is derived from a starch having an amylose content of at least 40% (w/w).

68. (Withdrawn) The use according to claim 67 wherein the resistant starch is derived from maize starch.

69. (Withdrawn) The use according to claim 68 wherein the maize starch having an amylose content of at least 70% (w/w).

70. (Withdrawn) The use according to claim 68 wherein the maize starch having an amylose content of at least 80% (w/w).

71. (Withdrawn) The use according to claim 68 wherein the maize starch having an amylose content of at least 90% (w/w).

72. (Withdrawn) The use according to claim 66 wherein the starch is chemically, physically, and/or enzymically treated or modified.

73. (Withdrawn) The use according to claim 72 wherein the chemical modification is selected from the group consisting of oxidation, cross-bonding, etherification, esterification, acidification, dextrinisation, and mixtures thereof.

74. (Withdrawn) The use according to claim 72 wherein the physical treatment is heat-moisture treatment to enhance or increase the resistant starch content of the starch.

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75. (Withdrawn) The use according to claim 72 wherein the treatment is by solvent extraction to remove fats and/or minerals from the starch.

76. (Cancelled)

77. (Previously Presented) A microbial preparation comprising harvested microbes which have been grown or cultured in a media based on or containing resistant starch in a manner such that when subsequently incorporated in a product, the survival/recovery rate of the harvested microbes is increased as compared with the same microbes grown or cultured in a media without resistant starch, the product being selected from the group consisting of a food, feed, nutraceutical, pharmaceutical, biocontrol, and bioremediation product, wherein the resistant starch is type RS1, RS3, or RS4.

78. (Previously Presented) The microbial preparation according to claim 77 further comprising resistant starch.

79. (Previously Presented) A microbial preparation comprising harvested microbes which have been grown or cultured in a media based on or containing resistant starch in a manner such that when subsequently incorporated in a product, the survival/recovery rate of the harvested microbes is increased as compared with the same microbes grown or cultured in a media without resistant starch, the product being selected from the group consisting of a food, feed, nutraceutical, pharmaceutical, biocontrol, and bioremediation product, wherein the resistant starch is derived from starch selected from the group consisting of rice, barley, wheat, legumes, bananas, and combinations thereof.

80. (Previously Presented) The microbial preparation according to claim 79 further comprising resistant starch.

81. (Previously Presented) A microbial preparation comprising harvested microbes which have been grown or cultured in a media based on or containing resistant starch in a manner such that when subsequently incorporated in a product, the survival/recovery rate of the harvested microbes is increased as compared with the same

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microbes grown or cultured in a media without resistant starch, the product being selected from the group consisting of a food, feed, nutraceutical, pharmaceutical, biocontrol, and bioremediation product, wherein the resistant starch is derived from a starch having an amylose content of at least 40% (w/w).

82. (Previously Presented) The microbial preparation according to claim 81 further comprising resistant starch.

83. (Previously Presented) The microbial preparation according to claim 82 wherein the resistant starch is derived from starch selected from the group consisting of maize, rice, barley, wheat, legumes, potatoes, and bananas, and combinations thereof.

84. (Previously Presented) The microbial preparation according to claim 83 wherein the resistant starch is derived from maize starch.

85. (Previously Presented) The microbial preparation according to claim 84 wherein the maize starch having an amylose content of at least 70% (w/w).

86. (Previously Presented) The microbial preparation according to claim 85 wherein the maize starch having an amylose content of at least 80% (w/w).

87. (Previously Presented) The microbial preparation according to claim 86 wherein the maize starch having an amylose content of at least 90% (w/w).

88. (Previously Presented) A microbial preparation comprising harvested microbes which have been grown or cultured in a media based on or containing resistant starch in a manner such that when subsequently incorporated in a product, the survival/recovery rate of the harvested microbes is increased as compared with the same microbes grown or cultured in a media without resistant starch, the product being selected from the group consisting of a food, feed, nutraceutical, pharmaceutical, biocontrol, and bioremediation product, wherein the starch is chemically, physically, and/or enzymically treated or modified.

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89. (Previously Presented) The microbial preparation according to claim 88 further comprising resistant starch.

90. (Previously Presented) The microbial preparation according to claim 88 wherein the resistant starch is derived from starch selected from the group consisting of maize, rice, barley, wheat, legumes, potatoes, and bananas, and combinations thereof.

91. (Previously Presented) The microbial preparation according to claim 88 wherein the chemical modification is selected from the group consisting of oxidation, cross-bonding, etherification, esterification, acidification, dextrinisation, and mixtures thereof.

92. (Previously Presented) The microbial preparation according to claim 88 wherein the physical treatment is heat-moisture treatment to enhance or increase the resistant starch content of the starch.

93. (Previously Presented) The microbial preparation according to claim 88 wherein the treatment is by solvent extraction to remove fats and/or minerals from the starch.

94. (Previously Presented) The microbial preparation according to claim 77 wherein when incorporated in a product, in use the microbes are substantially resistant to stresses including selected from the group consisting of aeration, sheer, freeze drying, freezing, drying including high, medium and low water activity, elevated temperatures, low temperatures, pressure and pressure fluctuations, low pH, high pH, bile acids, moisture, high osmolarity, low osmolarity, high salt, or and combinations thereof.

95. (Previously Presented) The microbial preparation according to claim 77 wherein the microbes are being a probiotic, a starter culture, or a biocontrol or bioremediation product.

96. (Previously Presented) The microbial preparation according to claim 95 wherein the microbes are probiotic microorganisms from the genera selected from the group of consisting of Saccharomyces, Bifidobacterium, Bacteroides, Clostridium, Fusobacterium,

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Propionibacterium, Streptococcus, Enterococcus, Lactococcus, Staphylococcus, Peptostreptococcus, Lactobacillus, and combinations thereof.

97. (Previously Presented) The microbial preparation according to claim 95 wherein the microbes are starter cultures selected from the group consisting of yeasts, lactic acid bacteria, and combinations thereof.

98. (Previously Presented) The microbial preparation according to claim 97 wherein the lactic acid bacteria are selected from the group consisting of Lactobacillus, Lactococcus, Streptococcus, Leuconostoc, and combinations thereof.

99. (Previously Presented) The microbial preparation according to claim 95 wherein the microbes are suitable for use in biocontrol or bioremediation being selected from the group consisting of Bifidobacterium, Lactobacillus, fungi, Bacillus, Pseudomonas Alcaligenes, and combinations thereof.

100. (Previously Presented) A product comprising a microbial preparation according to claim 77.

101. (Previously Presented) The product according to claim 100 selected from the group consisting of fluid-based food products, water-based fluids, cereal and plant-based food products, solid-based food products, tablets, food additives, health supplements, pharmaceutical preparations, and combinations thereof.

102. (Previously Presented) The product according to claim 101 wherein the fluid-based food products comprise milk-based products where the edible ingredient is one or more milk-based ingredients comprising whole milk, milk solids, milk fat, cream, non-fat dried milk, any other component or derivative from milk suitable for use in milk-based products.

103. (Previously Presented) The product according to claim 101 wherein the solid-based food products are selected from the group consisting of snack bars, breakfast cereals,

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bread, confectionary, extruded food products, muesli bars, buns, biscuits, feed pellets, coated food products, and combinations thereof.

104. (Previously Presented) The product according to claim 100 being a food product suitable to contain and deliver probiotic microorganisms.

105. (Previously Presented) The food product according to claim 104 selected from the group consisting of food stuffs, fruit beverages, water ices, confectionary, coatings or covertures, yoghurts, yoghurt drinks, unfermented drinks, flavoured milk drinks, modified milk drinks, ice-creams, dairy desserts, and combinations thereof.

106. (Previously Presented) The product according to claim 102 further comprising resistant starch.

107. (Previously Presented) The product according to claim 106 wherein the resistant starch is added at a concentration of 0.1 to 90% (w/w) total product.

108. (Previously Presented) The product according to claim 107 wherein the resistant starch is added at a concentration of about 10% (w/w) total product.

109. (Previously Presented) The microbial preparation according to claim 79 wherein when incorporated in a product, in use the microbes are substantially resistant to stresses including selected from the group consisting of aeration, sheer, freeze drying, freezing, drying including high, medium and low water activity, elevated temperatures, low temperatures, pressure and pressure fluctuations, low pH, high pH, bile acids, moisture, high osmolality, low osmolality, high salt, or and combinations thereof.

110. (Previously Presented) The microbial preparation according to claim 79 wherein the microbes are being a probiotic, a starter culture, or a biocontrol or bioremediation product.

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111. (Previously Presented) The microbial preparation according to claim 110 wherein the microbes are probiotic microorganisms from the genera selected from the group of consisting of Saccharomyces, Bifidobacterium, Bacteroides, Clostridium, Fusobacterium, Propionibacterium, Streptococcus, Enterococcus, Lactococcus, Staphylococcus, Peptostreptococcus, Lactobacillus, and combinations thereof.

112. (Previously Presented) The microbial preparation according to claim 110 wherein the microbes are starter cultures selected from the group consisting of yeasts, lactic acid bacteria, and combinations thereof.

113. (Previously Presented) The microbial preparation according to claim 112 wherein the lactic acid bacteria are selected from the group consisting of Lactobacillus, Lactococcus, Streptococcus, Leuconostoc, and combinations thereof.

114. (Previously Presented) The microbial preparation according to claim 110 wherein the microbes are suitable for use in biocontrol or bioremediation being selected from the group consisting of Bifidobacterium, Lactobacillus, fungi, Bacillus, Pseudomonas Alcaligenes, and combinations thereof.

115. (Previously Presented) A product comprising a microbial preparation according to claim 79.

116. (Previously Presented) The product according to claim 115 selected from the group consisting of fluid-based food products, water-based fluids, cereal and plant-based food products, solid-based food products, tablets, food additives, health supplements, pharmaceutical preparations and combinations thereof.

117. (Previously Presented) The product according to claim 116 wherein the fluid-based food products comprise milk-based products where the edible ingredient is one or more milk-based ingredients comprising whole milk, milk solids, milk fat, cream, non-fat dried milk, any other component or derivative from milk suitable for use in milk-based products.

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118. (Previously Presented) The product according to claim 116 wherein the solid-based food products are selected from the group consisting of snack bars, breakfast cereals, bread, confectionary, extruded food products, muesli bars, buns, biscuits, feed pellets, coated food products, and combinations thereof.

119. (Previously Presented) The product according to claim 115 being a food product suitable to contain and deliver probiotic microorganisms.

120. (Previously Presented) The food product according to claim 119 selected from the group consisting of food stuffs, fruit beverages, water ices, confectionary, coatings or covertures, yoghurts, yoghurt drinks, unfermented drinks, flavoured milk drinks, modified milk drinks, ice-creams, dairy desserts, and combinations thereof.

121. (Previously Presented) The product according to claim 115 further comprising resistant starch.

122. (Previously Presented) The product according to claim 121 wherein the resistant starch is added at a concentration of 0.1 to 90% (w/w) total product.

123. (Previously Presented) The product according to claim 122 wherein the resistant starch is added at a concentration of about 10% (w/w) total product.

124. (Previously Presented) The microbial preparation according to claim 81 wherein when incorporated in a product, in use the microbes are substantially resistant to stresses including selected from the group consisting of aeration, sheer, freeze drying, freezing, drying including high, medium and low water activity, elevated temperatures, low temperatures, pressure and pressure fluctuations, low pH, high pH, bile acids, moisture, high osmolality, low osmolality, high salt, or and combinations thereof.

125. (Previously Presented) The microbial preparation according to claim 81 wherein the microbes are being a probiotic, a starter culture, or a biocontrol or bioremediation product.

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126. (Previously Presented) The microbial preparation according to claim 125 wherein the microbes are probiotic microorganisms from the genera selected from the group of consisting of Saccharomyces, Bifidobacterium, Bacteroides, Clostridium, Fusobacterium, Propionibacterium, Streptococcus, Enterococcus, Lactococcus, Staphylococcus, Peptostreptococcus, Lactobacillus, and combinations thereof.

127. (Previously Presented) The microbial preparation according to claim 125 wherein the microbes are starter cultures selected from the group consisting of yeasts, lactic acid bacteria, and combinations thereof.

128. (Previously Presented) The microbial preparation according to claim 126 wherein the lactic acid bacteria are selected from the group consisting of Lactobacillus, Lactococcus, Streptococcus, Leuconostoc, and combinations thereof.

129. (Previously Presented) The microbial preparation according to claim 125 wherein the microbes are suitable for use in biocontrol or bioremediation being selected from the group consisting of Bifidobacterium, Lactobacillus, fungi, Bacillus, Pseudomonas Alcaligenes, and combinations thereof.

130. (Previously Presented) A product comprising a microbial preparation according to claim 81.

131. (Previously Presented) The product according to claim 130 selected from the group consisting of fluid-based food products, water-based fluids, cereal and plant-based food products, solid-based food products, tablets, food additives, health supplements, pharmaceutical preparations, and combinations thereof.

132. (Previously Presented) The product according to claim 131 wherein the fluid-based food products comprise milk-based products where the edible ingredient is one or more milk-based ingredients comprising whole milk, milk solids, milk fat, cream, non-fat dried milk, any other component or derivative from milk suitable for use in milk-based products.

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133. (Previously Presented) The product according to claim 131 wherein the solid-based food products are selected from the group consisting of snack bars, breakfast cereals, bread, confectionary, extruded food products, muesli bars, buns, biscuits, feed pellets, coated food products, and combinations thereof.

134. (Previously Presented) The product according to claim 130 being a food product suitable to contain and deliver probiotic microorganisms.

135. (Previously Presented) The food product according to claim 134 selected from the group consisting of food stuffs, fruit beverages, water ices, confectionary, coatings or covertures, yoghurts, yoghurt drinks, unfermented drinks, flavoured milk drinks, modified milk drinks, ice-creams, dairy desserts, and combinations thereof.

136. (Previously Presented) The product according to claim 130 further comprising resistant starch.

137. (Previously Presented) The product according to claim 136 wherein the resistant starch is added at a concentration of 0.1 to 90% (w/w) total product.

138. (Previously Presented) The product according to claim 137 wherein the resistant starch is added at a concentration of about 10% (w/w) total product.

139. (Previously Presented) The microbial preparation according to claim 88 wherein when incorporated in a product, in use the microbes are substantially resistant to stresses including selected from the group consisting of aeration, sheer, freeze drying, freezing, drying including high, medium and low water activity, elevated temperatures, low temperatures, pressure and pressure fluctuations, low pH, high pH, bile acids, moisture, high osmolarity, low osmolarity, high salt, or and combinations thereof.

140. (Previously Presented) The microbial preparation according to claim 88 wherein the microbes are being a probiotic, a starter culture, or a biocontrol or bioremediation product.

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141. (Previously Presented) The microbial preparation according to claim 140 wherein the microbes are probiotic microorganisms from the genera selected from the group of consisting of Saccharomyces, Bifidobacterium, Bacteroides, Clostridium, Fusobacterium, Propionibacterium, Streptococcus, Enterococcus, Lactococcus, Staphylococcus, Peptostreptococcus, Lactobacillus, and combinations thereof.

142. (Previously Presented) The microbial preparation according to claim 140 wherein the microbes are starter cultures selected from the group consisting of yeasts, lactic acid bacteria, and combinations thereof.

143. (Previously Presented) The microbial preparation according to claim 142 wherein the lactic acid bacteria are selected from the group consisting of Lactobacillus, Lactococcus, Streptococcus, Leuconostoc, and combinations thereof.

144. (Previously Presented) The microbial preparation according to claim 140 wherein the microbes are suitable for use in biocontrol or bioremediation being selected from the group consisting of Bifidobacterium, Lactobacillus, fungi, Bacillus, Pseudomonas Alcaligenes, and combinations thereof.

145. (Previously Presented) A product comprising a microbial preparation according to claim 88.

146. (Previously Presented) The product according to claim 145 selected from the group consisting of fluid-based food products, water-based fluids, cereal and plant-based food products, solid-based food products, tablets, food additives, health supplements, pharmaceutical preparations, and combinations thereof.

147. (Previously Presented) The product according to claim 146 wherein the fluid-based food products comprise milk-based products where the edible ingredient is one or more milk-based ingredients comprising whole milk, milk solids, milk fat, cream, non-fat dried milk, any other component or derivative from milk suitable for use in milk-based products.

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148. (Previously Presented) The product according to claim 146 wherein the solid-based food products are selected from the group consisting of snack bars, breakfast cereals, bread, confectionary, extruded food products, muesli bars, buns, biscuits, feed pellets, coated food products, and combinations thereof.

149. (Previously Presented) The product according to claim 145 being a food product suitable to contain and deliver probiotic microorganisms.

150. (Previously Presented) The food product according to claim 149 selected from the group consisting of food stuffs, fruit beverages, water ices, confectionary, coatings or covertures, yoghurts, yoghurt drinks, unfermented drinks, flavoured milk drinks, modified milk drinks, ice-creams, dairy desserts, and combinations thereof.

151. (Previously Presented) The product according to claim 145 further comprising resistant starch.

152. (Previously Presented) The product according to claim 151 wherein the resistant starch is added at a concentration of 0.1 to 90% (w/w) total product.

153. (Previously Presented) The product according to claim 152 wherein the resistant starch is added at a concentration of about 10% (w/w) total product.